User Manual and Parts Book

Verti-Cut 1300

Serial number:

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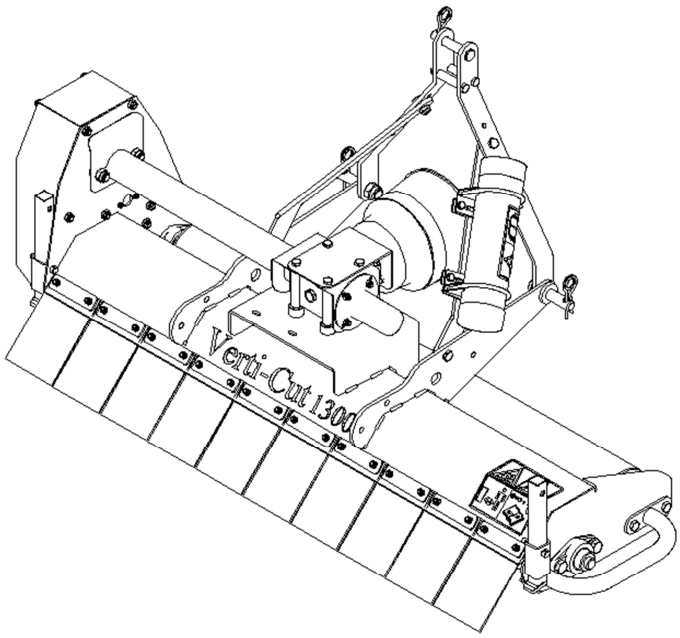
TM

Translation of the original operating instructions



ATTENTION:
IT IS OF THE UTMOST IMPORTANCE TO READ THIS USER MANUAL CAREFULLY PRIOR TO USING THE VERTI-CU IN ORDER TO USE THE MACHINE SAFELY AND TO OBTAIN THE BEST RESULTS.

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FOREWORD

Congratulations on your Verti-Cut purchase! For safe and long-lasting operation of this Verti-Cut, it is necessary to read and to understand this user manual.
It is impossible to work safely with this machine *without* complete knowledge of its content.

The Verti-Cut is not a machine that works independently. It is the user's responsibility to use the correct tractor. The user must also check the tractor/Verti-Cut combination on safety aspects such as noise level, user instructions and risk analysis.

The following pages deal initially with the general safety instructions. Every user should know these safety instructions and apply them. At the end of this page, a registration card is inserted. This registration card should be returned to enable us to deal with potential future claims.

This user manual lists many instructions that are numbered in sequence. You should follow this sequence. A ⚠ is an indication of a safety instruction. A ☞ means a tip and/or note.

All information and technical specifications provided at the moment that this document is published are the most recent ones. Design specifications may be changed without prior notice.

This document is a translation of the original operating instructions.
Upon request, the original operating instructions are available in Dutch.

WARRANTY CONDITIONS

WITH DELIVERY THIS VERTI-CUT IS GUARANTEED AGAINST MATERIAL DEFECTS.
THIS WARRANTY IS VALID FOR A PERIOD OF 12 MONTHS FROM THE PURCHASE DATE.
VERTI-CUT WARRANTIES ARE SUBJECT TO THE 'GENERAL CONDITIONS FOR SUPPLY OF PLANT AND MACHINERY FOR EXPORT, NUMBER 188' THAT ARE PUBLISHED UNDER THE AUSPICES OF THE UNITED NATIONS ECONOMIC COMMISSION FOR EUROPE.

REGISTRATION CARD

For your own information, fill in the table below:

Serial number of the machine	
Dealer name	
Date of purchase	
Remarks	

! SAFETY INSTRUCTIONS !

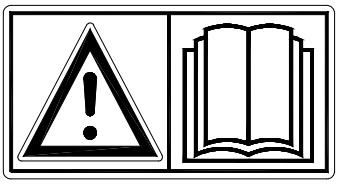

Figure 1

The Verti-Cut is designed for safe use. This can only be achieved if you completely follow the safety instructions described in this manual.
Read and understand (Figure 1) the manual *before* you start using the Verti-Cut.
If the machine is not used as described in this manual, this can result in injuries and/or damage to the Verti-Cut.

(1) The user must be an expert in using the machine. The machine should be professionally adjusted for cultivating the subsoil.

The manufacturer will not accept any liability for unprofessional use and its resulting damage. All risks occurring with this are entirely at the expense of the user.
Following the use, maintenance and repair instructions prescribed by the manufacturer is also considered professional use of this machine.

Inspect the area to be treated *before* using the Verti-Cut.
Remove loose obstacles and avoid irregularities.

(2) The Verti-Cut is manufactured according to the latest technical understanding and is safe to use.

When unskilled people use, maintain or repair the machine, this could result in injuries to the user *and* to third parties. **This must be avoided**!

Always use the Verti-Cut in combination with the correct tractor as described in the technical data.

(3) All persons assigned to operate, maintain and repair the Verti-Cut by the owner must completely read and understand the operation manual and in particular the chapter of **Safety Instructions**.

The user is responsible for a **safe Tractor/Verti-Cut combination**. **This entire combination must be tested** for noise, safety, risk and user friendliness. User instructions should also be drafted.

(4) The user is **obliged to check** the Verti-Cut for **visible damage and defects** before using the Verti-Cut.
Modifications to the Verti-Cut (including its operations) that have a negative impact on safety must be rectified immediately.
For safety reasons it is in principle not permitted to make changes or adjustments to the Verti-Cut (except those approved by the manufacturer).

If **modifications** to the Verti-Cut have been made, then the current CE marking is cancelled. The person that has made these modifications has to apply for a new **CE marking himself**. Check the Verti-Cut for loose bolts, nuts and components *before* every operation.

If present, check the hydraulic pipelines regularly and replace these when the hydraulic pipelines are damaged or appear old. The pipelines that are replaced should comply with the technical requirements of the manufacturer.

If a hydraulic installation is present, you should **always** make it pressure-free *before* working on this installation.

NEVER use the Verti-Cut in the absence of the safety stickers.

NEVER crawl under the Verti-Cut.

If necessary, tilt the Verti-Cut.

NEVER step off the tractor while the motor is running.

In case of maintenance, adjusting and repairs, it is necessary to block the Verti-Cut in order to prevent sinking away, driving off and/or sliding off.

Always switch off the tractor motor, take the tractor's key out off the ignition and disconnect the Power Take-Off (PTO) in case of maintenance, adjusting and repairs (Figure 2).

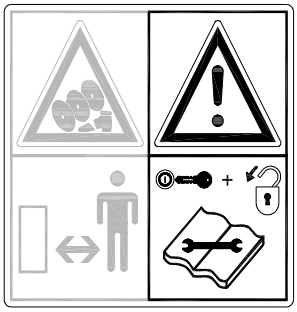

Figure 2

With regards to the safety of the machine and the user, use only original Verti-Cut parts for maintenance and repairs.

Only authorised technical personnel may carry out repairs to the **Verti-Cut.**

Keep a record of the repair activities.

(5) The general applicable health & safety (Dutch: ARBO) regulations must also be followed in addition to the instructions in this user manual.

Relevant traffic regulations also apply in case of using public roads.

Transporting persons is not permitted!

Do not use the Verti-Cut in the dark, in heavy rain/storm or on slopes with an angle larger than 20 degrees.

(6) All persons that are going to operate the Verti-Cut must be familiar with all the functions and control elements of the Verti-Cut *before* starting any work activities.
Attach the Verti-Cut to the towing vehicle according to the regulations.
(Danger of injuries!)
Check whether you have a clear field of vision – both close by and far away – *before* you depart.

Safety stickers (Figure 2, 3 and 4) with an identical meaning are attached to both sides (Figure 5) of the Verti-Cut. These safety stickers must always be clearly visible and legible and must be replaced if they have become damaged.

During operation, **NO persons are allowed within the danger zone** of the Verti-Cut, because there is danger of physical injuries caused by moving components. (Figure 3)

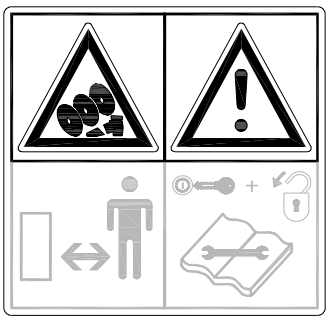

Figure 3

Figure 4

Keep a distance of minimum 4 metres! (Figure 4)

Pay attention to the permitted lifting capacity of the towing vehicle.

Dress appropriately. Wear sturdy shoes with steel toecaps, long trousers and tie up long hair. Do not wear loose clothing.

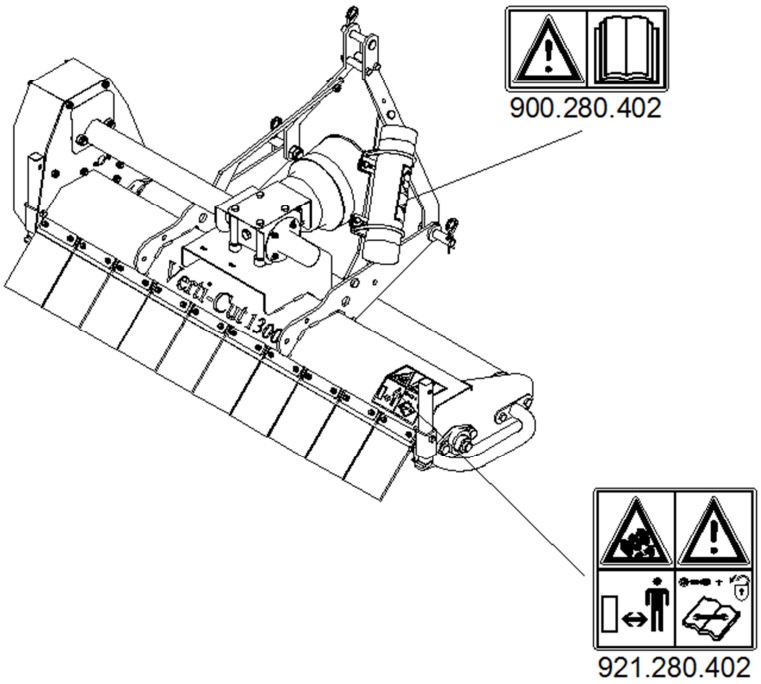

Figure 5

(7) Location of the safety stickers (Figure 5)

Used oil/grease is harmful to the environment. Dispose of these substances according to the regulations that apply in your location.

CE

EU DECLARATION

We,

Redexim BV
Utrechtseweg 127
3702 AC Zeist, Holland

declare entirely under our own responsibility that the product

VERTI-CUT WITH A MACHINE NUMBER AS INDICATED ON THE MACHINE AND INDICATED IN THIS MANUAL

to which this declaration refers, complies with stipulation of the 2006/42/EC machine directive.

Zeist, 16.04.12

A.C. Bos
Manager Operations & Logistics
Redexim Holland

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1.0 TECHNICAL DATA

1.1 Model	Verti-Cut 1300
Working width	1300mm (51,2”)
Working depth (In case of a non-worn knives)	0mm - 40mm (0” - 1.57”)
Distance between the knives	30mm
Working speed	Depending on the conditions
Recommended tractor	18 HP with minimum lifting capacity of 185 kg (408 lbs)
PTO rpm	Maximum 540 rpm
Weight	155 kg (342 lbs)
Capacity (Theoretical at a speed of 5 km/h (3.1 mph))	6500 m^2/h (21325 ft^2/h)
Dimensions	L x W x H 692 x 1616 x 801 mm 27.2” x 63.6” x 31.5”
Gearbox/motor oil	SAE 90
Grease	EP 2
Standard components	- Knives 2 mm - PTO
Optional	- Knives 1mm - Knives 3mm

2.0 GENERAL DESCRIPTION

The Verti-Cut is a machine for aerating grass surfaces.

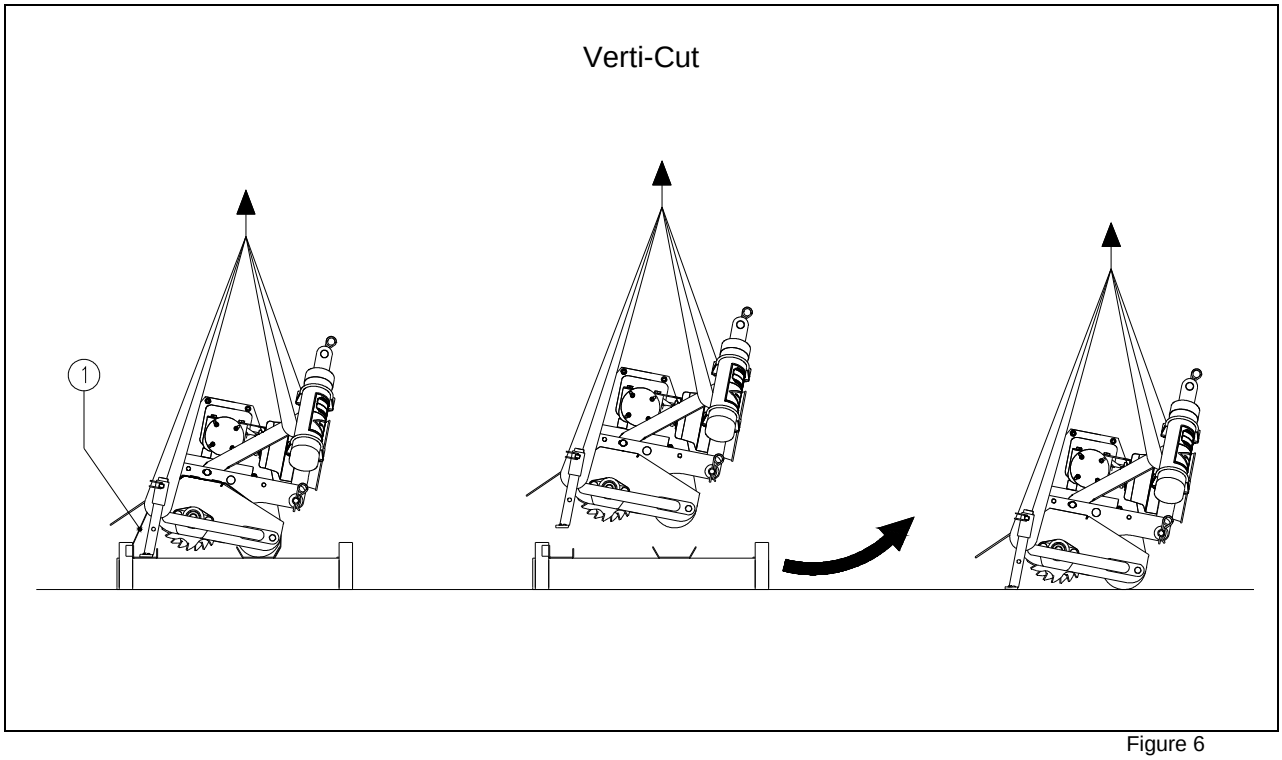


Figure 6

3.0 FIRST INSTALLATION OF THE VERTI-CUT

The machine is placed in the transport position on the pallet. To remove the pallet and to place the machine horizontally on the ground, you take the following steps (see Figure 6):

⚠ **NEVER crawl under the machine!**

1. Attach a cable to the lifting eye.
   ⚠ **Make sure that the cable/crane/lift can hoist minimum twice the weight of the machine. (See Chapter 1.0 'Technical Data' for the weight details.)**
2. Remove the transport straps (1).
3. Lift the machine off the pallet.
4. Pull the pallet from under the machine.
   ⚠ **NEVER crawl under the machine!**
5. Slowly lower the machine until it touches the ground.
6. Attach the machine to a tractor. (See Chapter 4.0 for instructions about attaching to the tractor.)

⚠ **Use the proper tractor (please refer to the specifications).**

⚠ **Turn off the tractor and secure the tractor/Verti-Cut combination against driving off and/or sliding off.**

4.0 ATTACHING / DETACHING THE VERTI-CUT

Checking procedure before starting to attach the Verti-Cut:

- Check the Verti-Cut for visually discernable damage and repair this if safe operation of the machine is no longer guaranteed.
- Check whether all the nuts and bolts are tight.
- Check whether all protection caps and all safety stickers are present on the machine and are not damaged.
  NEVER use the machine without these items.

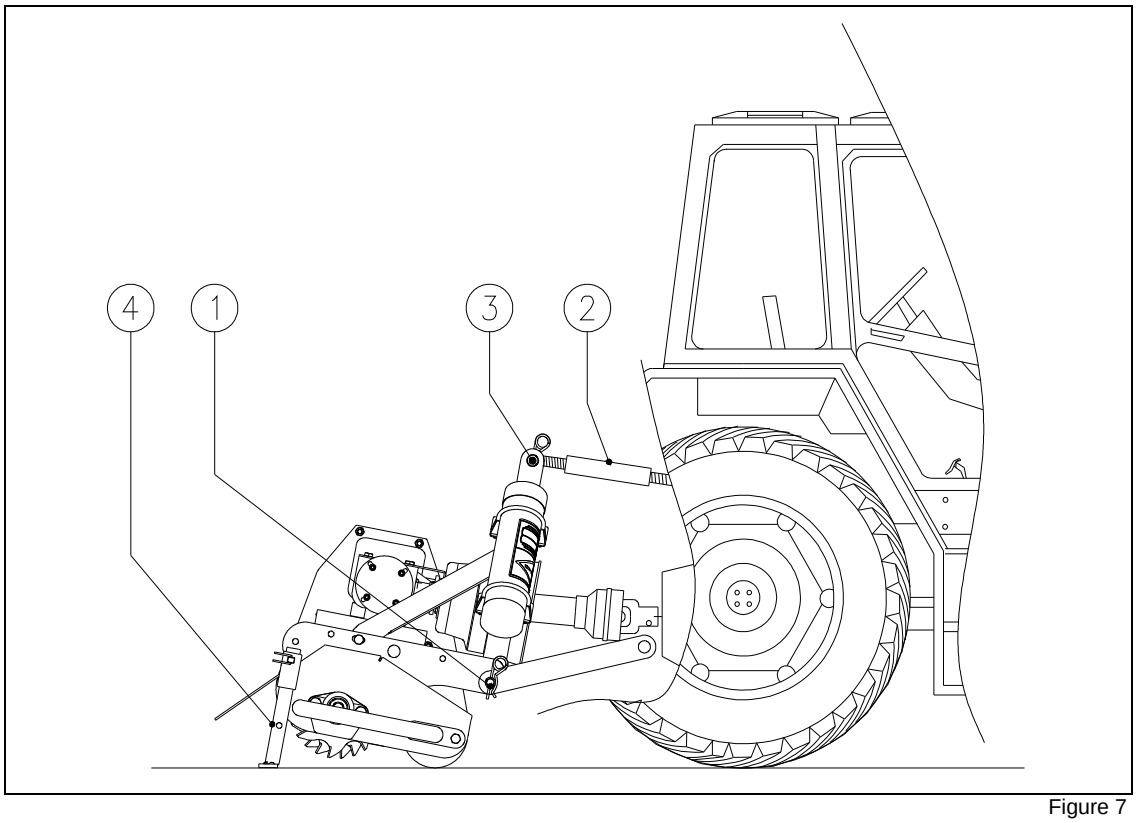


Figure 7

The Verti-Cut can be attached to the tractor by means of the 3-point attachment.
The procedure is as follows (see Figure 7):

1. Drive the tractor carefully backwards so that the lower connecting arms can be attached to the frame.
   ⚠ **Make sure that the tractor is blocked well and cannot move on its own accord!**
   ⚠ **Switch off the tractor before descending!**
2. Connect the lower connecting arms to the 3-point pins (1) and secure these with the supplied locking pins.
3. Set the stabilizer of the tractor to 100mm lateral stroke.
4. Connect the top rod (2) to the frame with the pin (3); secure the pin (3) with the supplied locking pin.
   ⚠ **Make sure that all the securing pins are locked!**
5. Turn the top rod (3) inwards so that it becomes pressurized.
6. Connect the PTO between the Verti-Cut and the tractor.
7. Start the tractor and lift the Verti-Cut off the subsoil.
8. Slide the adjustable legs (4) upwards and secure these with the locking pin(s).

Detaching is done in reverse order.

5.0 THE POWER TAKE-OFF (PTO)

The PTO is a very important component. It also takes care of safe use of the machine, provided it is installed and maintained in the correct manner. The PTO has its own CE certification. Read the PTO manual. This manual is located on the PTO.

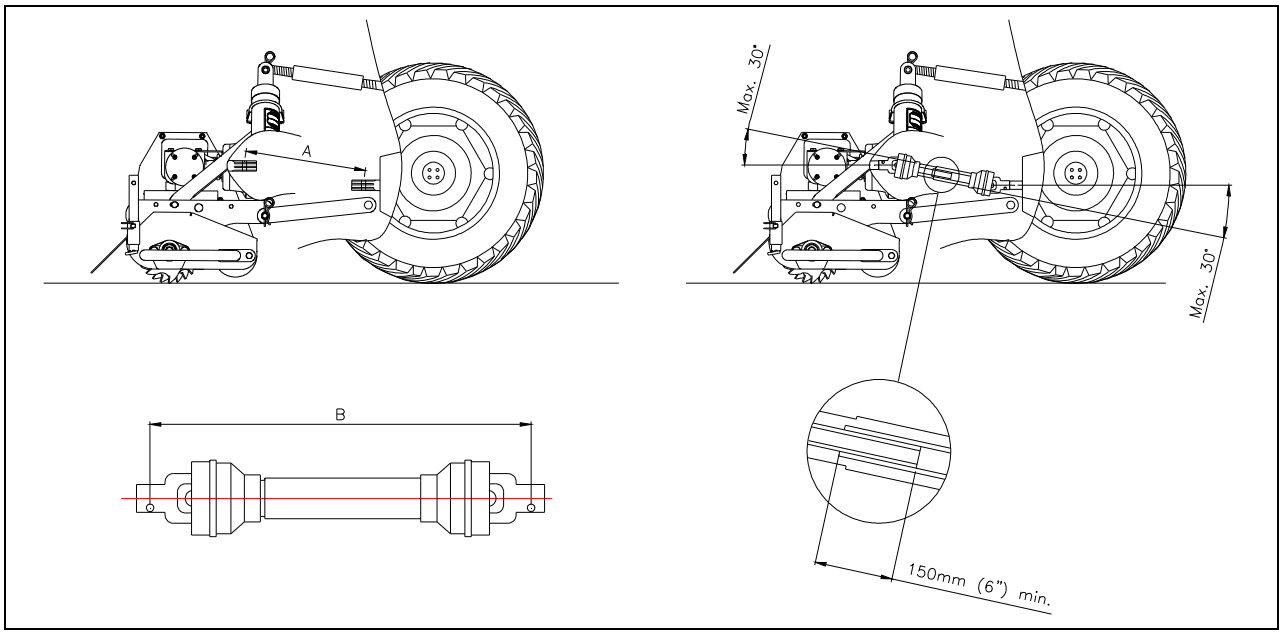


Figure 8

5.1 LENGTH OF THE PTO

The length of the PTO is very important. If it is too long, it can damage the drive of the tractor and/or the Verti-cut. If the overlapping length of the cylinders becomes less than 150 mm (6″) at any time, it can damage the PTO.

⚠ **The length changes when the machine is lifted or when a different tractor is used!**

In order to set the PTO to the correct length, when a new one has been purchased or when a different tractor is used, follow these steps (see Figure 8):

1. Measure the distance between the PTO's connection to the tractor and to the machine, from groove to groove, when the machine is connected to the tractor and positioned on the ground at the right angle.
2. Measure the distance B of the PTO in its shortest position from the locking pin to the locking bolt.
3. Divide the PTO in two parts and remove the protection cap at both ends.
4. The ends of the cylinders and the ends of the protection caps must be made shorter: (B-A) + 75 mm (3").
5. Smooth off all components, use some grease, and then assemble all components.
6. Attach the other end of the PTO to the tractor.
7. Check the overlap of the cylinders.

⚠ **Never use the machine if it has a damaged PTO protection cap. First replace any damaged parts!**

5.2 USING THE PTO

The following items must be checked for correct use of the PTO:

1. While working the angle of the pivot pins may not exceed 30 degrees.
2. The pivot pins must always be aligned.
3. The overlap of the cylinders must always be minimum 150 mm.
4. Never use the machine if it has a damaged PTO protection cap.
5. For lubrication, please refer to Chapter 12.0 'Maintenance'.

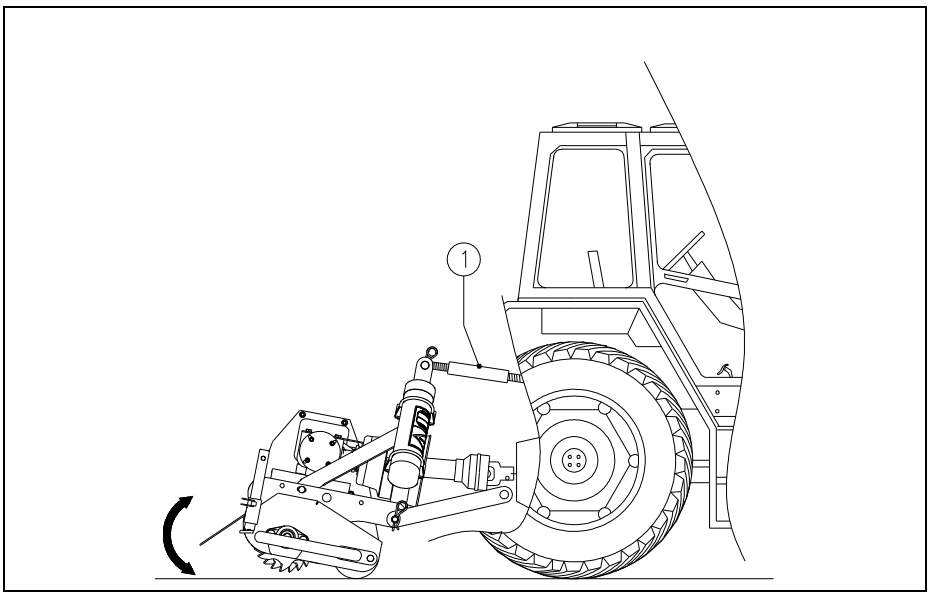


Figure 9

6.0 ADJUSTING THE WORKING DEPTH

Adjusting the top rod (1) will set the working depth of the machine.
Turning the top rod in or out will adjust the working depth (see Figure 9).

7.0 TRANSPORTING THE VERTI-CUT

The user is responsible for transporting the Verti-Cut in back of the tractor over public roads. Verify the national legislation regarding the regulations. A maximum speed of 20 km/h (12.4 mph) – on condition that circumstances permit this – should be observed when driving over fields with the machine in a lifted position. Higher speeds can endanger the driver/public and may even damage the machine.

⚠ **When the machine is raised off the ground, the front axle of the tractor has to support minimum 20% of its weight.**

8.0 THE WORKING SPEED

The working speed of the Verti-Cut is maximum 5 km/h (3.1 mph). However, in practice you should adjust your speed to the soil that has to be treated *and* the required working depth.

9.0 USING THE VERTI-CUT

Before using the Verti-Cut in a location, you should check the following items:

1. Are there loose objects in the field? First remove these objects.
2. Are there slopes? The maximum slope is 20 degrees for this machine. Always go from top to bottom.
3. Is there danger of flying objects (e.g., balls) that distract the attention of the driver? If so, the Verti-Cut **CANNOT** be used.
4. Is there danger of sinking/sliding away? If so, postpone the processing until conditions improve.
5. If the soil is wet, postpone the activities until conditions improve.
6. Do not make sharp bends and preferably, drive in straight lines; otherwise you might damage the subsoil.

10.0 START/STOP PROCEDURE OF THE VERTI-CUT

The start procedure is **VERY** important. If this procedure is not executed as described below, serious damage to the machine / subsoil could be the result.

The start procedure is as follows:

1. Check the Verti-Cut for loose components and look whether all components function properly.
   ⚠ **If loose components are observed or components do not function properly, the problems must be solved *before* using the Verti-Cut!**
2. Drive to the spot where the processing should take place.
3. Put the machine on the surface that has to be treated and adjust the working depth of the machine statically as described in Chapter 6.0.
4. Lift the machine.
5. Engage the tractor in the correct gear.
6. Adjust the tractor engine to around 1200 rpm and engage the PTO.
7. Slowly lower the machine until it reaches the required working depth.
8. Drive forwards and increase the rotational speed until the PTO rotational speed of 540 rpm is achieved.
9. For the first few meters:
   Check whether the required working depth is achieved. If necessary, adjust the working depth as described in Chapter 6.0.

Stopping occurs as follows:

1. Decrease the engine revs to 1200 rpm.
2. Lift the machine off the ground.
3. Switch the PTO off as soon as the knives do no longer touch the subsoil.
4. Lift the machine even more.
5. Go to the next location and start again as described above.

⚠ **It is preferred to drive in straight lines. Otherwise, damage can occur to the subsoil and/or the machine!**

11.0 TROUBLE SHOOTING (PROBLEM ANALYSIS)

Problem	Possible cause	Solution
Knife rotor does not rotate.	- Machine is adjusted too deep. - V-belts are slipping.	- Adjust the machine to less depth. - Adjust the V-belts.
Squeaking noises during the machine's operation	- Bearings are worn out	- Replace the faulty bearings.
Removed too little material.	- Working depth is adjusted too shallow - Driving speed is too high. - Knives are worn out. - V-belts are slipping.	- Adjust the machine to more depth. - Lower the driving speed. - Replace the knives. - Adjust the V-belts. Replace the V-belts.
Sloppy image of the field after processing	- Machine is adjusted too deep. - Subsoil is too wet. - Knives are twisted. - Spacers between the knives are damaged. - Did not drive in a straight line.	- Adjust the machine to less depth. - Postpone treatment until conditions improve. - Replace the knives. - Replace the spacers. - Drive in a straight line during treatment.
Damage to the grass	- Bad quality grass - Blunt knives	- Decrease the working depth. Decrease the working speed. Use different knives. - Replace the knives.

12.0 MAINTENANCE

Time schedule	Check/Grease point	Method
Before **every** use	- Check for loose bolts/nuts. - Presence and readability of the safety stickers (Please refer to Figure 5)	- Tighten loose bolts/nuts with the correct tightening moment. - Replace these if not present or damaged.
After **every** use	- Clean the machine.	- Watch out for the bearings if a high-pressure sprayer is used.
After the **first** 20 working hours (new or repaired)	- Check the roller bearings and the driveline. - Check for loose bolts/nuts. - Check the tension of the V-belts.	- If required, replace the parts. - Tighten loose bolts/nuts. - Adjust the tension of the V-belts or – if required – replace the V-belts.

Time schedule	Check/Grease point	Method
After **every** 100 working hours or annually	- Check the roller bearings and the driveline. - Check for loose bolts/nuts. - Check the tension of the V-belts. - Check for oil leakage. - Check the oil level in the gearbox.	- Use EP2 lubrication. If required, replace these parts. - Tighten loose bolts/nuts. - Adjust the tension of the V-belts or – if required – replace the V-belts. - Replace or repair - Use SAE90 for the gearbox.
After **every** 500 working hours	- Change the oil in the gearbox.	- Use SAE90 for the gearbox.

Used oil/grease is harmful to the environment. Dispose of these substances according to the regulations that apply in your location.

13.0 TIGHTENING THE V-BELTS OF THE VERTI-CUT

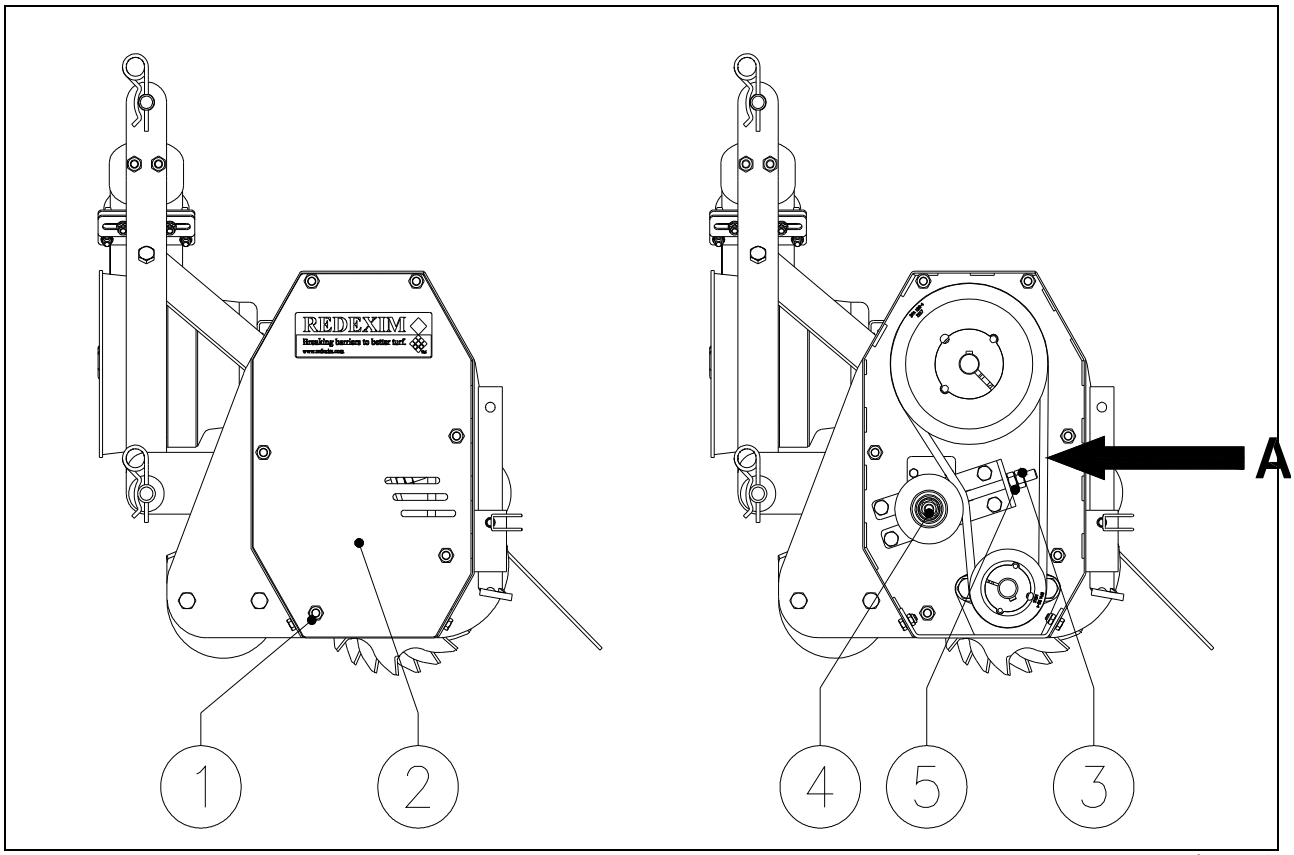


Figure 10

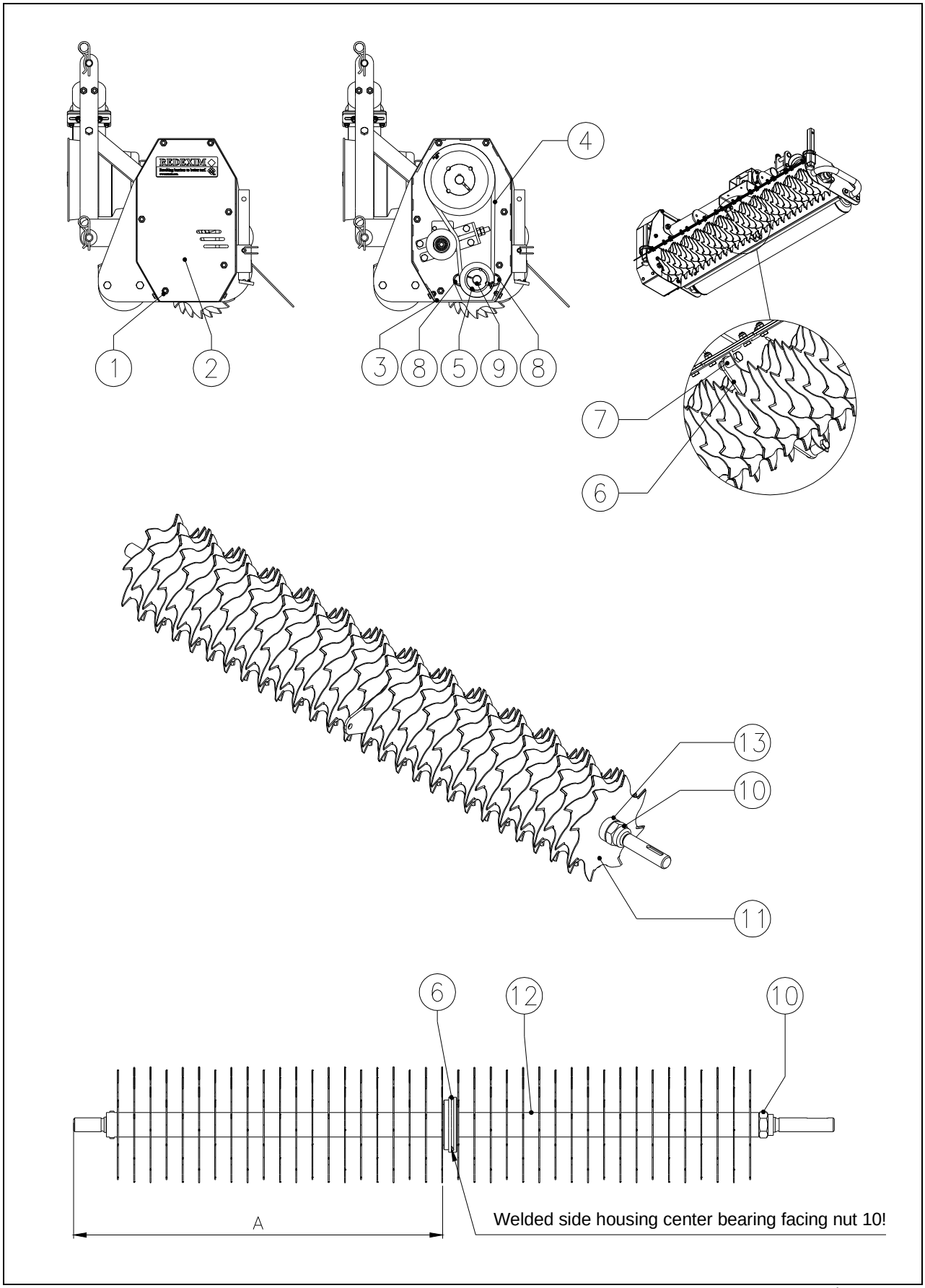
The Verti-Cut is standard equipped with adjustable tension pulleys that keep the V-belts taut. Depending on the intensity of using the machine, wear and tear can occur to the driveline resulting in slipping of the V-belts. These V-belts should then be tightened.

Adjusting the tension pulley is done as follows (see Figure 10):

⚠ **Make sure that the Verti-Cut is blocked well and cannot move on its own accord!**

⚠ **Make sure that the PTO is detached from the Verti-Cut!**

1. Remove all nuts (1) and the safety cap (2).
2. Loosen the lock nut (3).
3. Loosen the nut (4) slightly so that the tension is just off.
4. Adjust the nut (5) and adjust with this the tension of the V-belts by moving the tension pulley.
5. Check the tension of the V-belt by pushing point A with a pressure of 5 kg (11 lbs). The stretch should be 6.8 mm (0.27”).
6. Tighten the nut (4).
7. Tighten the lock nut (3).
8. Return the safety cap (2) to its location and mount all nuts (1).


REDEXIM
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A
Welded side housing center bearing facing nut 10!

Figure 11

13.1 CHANGING / REPLACING THE KNIVES

If the knives are worn out or another knife thickness is required, the knives should be changed. This is done as follows (see Figure 11):

⚠ **Make sure that the Verti-Cut is blocked well and cannot move on its own accord!**

⚠ **Make sure that the PTO is detached from the Verti-Cut!**

1. Remove all nuts (1) and the safety cap (2).
2. Remove the bottom cover (3).
3. Loosen the tension of the V-belts (4) and remove the V-belts from the bottom pulley (5).
4. Lift the machine and loosen the centre bearing (6) together with the spacers (7) by removing the fastening bolts.

⚠ **Make sure that the Verti-Cut is blocked well and cannot move on its own accord!**

5. Lower the machine onto the ground and remove the bolts from the bearings (8) on both sides of the machine.
6. Lift the machine and remove the rotor axle (9).

⚠ **Watch out: the knives may be sharp!**

7. Remove the nut (10) from the rotor axle (9) and remove the knives (11), centre bushes (12), end bush (13) and the centre bearing (6).
8. Reconstruct the rotor axle by sliding the knives in a spiral and stepped way onto the axle.
   Take the following into account: the centre bearing (6) is at distance A (= 679mm or 26.7”) and the welded side of the bearing house must face the side of the rotor axle nut.
9. At the end, place end bush (13) and nut (10) back and tighten the nut.
10. Place the rotor axle (9) back in the machine.
11. Mount the bearings (8) on both sides of the machine and tighten the nuts.
12. Attach the centre bearing (6) together with the spacers (7) to the frame and tighten the nuts.
13. Put the V-belts (4) around the bottom pulley (5).
14. Tighten the V-belts of the Verti-Cut as described in Chapter 13.0.
15. Mount the bottom cover (3) and tighten the nuts.
16. Mount the safety cap (2) and tighten the nuts (1).